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Choroidal metastasis from early rectal cancer: Case report and literature review



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ABSTRACT

INTRODUCTION: Choroidal metastasis from colorectal cancer is rare, and there have been no reported cases of such metastasis from early colorectal cancer. We report a case of choroidal metastasis from early rectal cancer.**PRESENTATION OF CASE:** A 61 year-old-man experienced myodesopsia in the left eye 2 years and 6 months after primary rectal surgery for early cancer, and was diagnosed with left choroidal metastasis and multiple lung metastases. Radiotherapy was initiated for the left eye and systemic chemotherapy is initiated for the multiple lung metastases. The patient is living 2 years and 3 months after the diagnosis of choroidal metastasis without signs of recurrence in the left eye, and continues to receive systemic chemotherapy for multiple lung metastases.**DISCUSSION:** Current literatures have few recommendations regarding the appropriate treatment of choroidal metastasis from colorectal cancer, but an aggressive multi-disciplinary approach may be effective in local regression.**CONCLUSION:** This is the first report of choroidal metastasis from early rectal cancer. We consider it important to enforce systemic chemotherapy in addition to radiotherapy for choroidal metastasis from colorectal cancer.© 2014 The Authors. Published by Elsevier Ltd. on behalf of Surgical Associates Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

1. Introduction

Primary tumors with choroidal metastases include, those originating from the lungs, breast and gastrointestinal tract, and were very rare in patients with carcinoma of the colon or rectum. Here, we report a case of choroidal metastasis from early rectal cancer.

2. Case presentation

A 60 year-old-man with a positive fecal occult blood test was diagnosed with early rectal cancer and underwent endoscopic mucosal resection at another hospital. Pathological findings showed well-differentiated adenocarcinoma with submucosal invasion (SM; 3500 μ m), lymphatic infiltration (ly1), and no venous invasion (v0). A horizontal and vertical cut margin was negative (Fig. 1). According to the Japanese Society for Cancer of the Colon and Rectum (JSCCR) 2010 guidelines for the treatment of colorectal cancer,¹ the patient underwent laparoscopic low anterior resection with D2 lymphadenectomy. Final pathological findings revealed no residual tumor cell in the rectum and one metastasis in regional lymph nodes (1/15).

The patient received postoperative adjuvant chemotherapy with uracil-tegafur (UFT) plus leucovorin for six months. Two years after radical rectal surgery, a metastasis in left lung was detected by computed tomography (CT). No metastases were detected in other organs. The patient underwent thoracoscopic partial pulmonary resection. Pathological findings revealed metastatic tubular adenocarcinoma in the lung and the surgical cut margin was negative.

Six months after pulmonary resection, the patient experienced left sided myodesopsia, examination for which showed a white and yellow choroidal mass. CT scan of the brain demonstrated a metastatic lesion in the left eye (Fig. 2a and b). A repeat CT scan of chest demonstrated the presence of multiple metastases in both lungs (Fig. 3a and b). No other metastatic lesions or recurrences were detected. The patient elected to undergo radiotherapy for his choroidal metastasis. After radiotherapy (45 Gy/25 fr) to the left eye, bevacizumab + CapeOX (capecitabine + oxaliplatin) was initiated for 18 months and bevacizumab + FOLFIRI was continued for 9 months until the time. The patient has survived for 2 years and 3 months without signs of recurrence in the left eye and is receiving ongoing systemic chemotherapy for multiple lung metastases.

3. Discussion

Regarding ocular malignancy, metastatic tumors are becoming more common than primary tumors, and are mainly found in the

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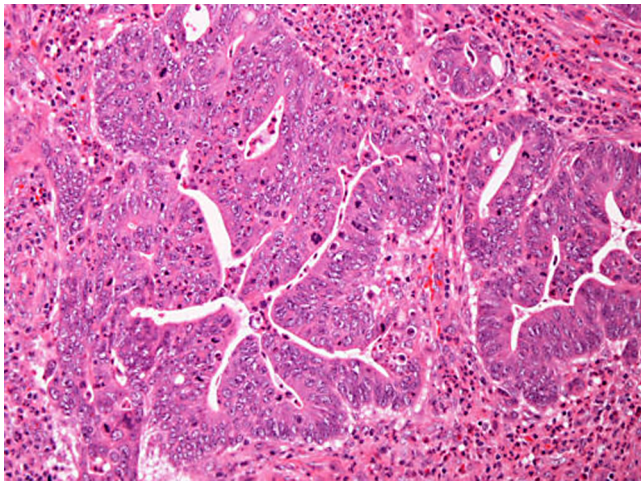


Fig. 1. Histological findings showed increased well-differentiated tubular adenocarcinoma within a tubular adenoma (hematoxylin and eosin, 100 \times).

choroid. Primary tumors with choroidal metastases include, those originating from the lungs, breast and gastrointestinal tract at frequencies of 47%, 21%, 4%, respectively.² Amemiya et al. reported that orbital metastases more frequently arise from the liver and stomach in Japan compared to the United States and Europe, and were very rare in patients with carcinoma of the uterus, ovaries, bladder, pancreas, colon or rectum.³

We searched the PubMed database through 2014 and the Japanese Ichushi database of the Japan Medical Abstracts Society (<http://www.jamas.or.jp/>) from 1983 through 2014, using the following search terms: “choroidal metastasis,” “colorectal,” and “cancer.” The results identified 14 patients in addition to the current patient who underwent primary colorectal tumor resection (Table 1).^{4–16} The mean age of the patients was 54.2 years (range 30–79 years). Of the 14 patients, 10 were males. Five patients had colon cancer and 9 patients had rectal cancer. Regarding T stage, only our case was T1; all others were T3 or T4a. The current case is the first report of choroidal metastasis from early colorectal cancer.

Four patients had a diagnosis of synchronous choroidal metastases, and 10 patients had metachronous metastases, which were diagnosed at a mean of 23.8 months after primary tumor resection. The major symptom was vision loss in 7 patients, blurring of vision in 3 patients, photopsia in one patient, cloudy vision in one patient, eye pain in one patient and myodesopsia in one patient.

Choroidal metastasis from colorectal cancer has an unfavorable prognosis. When choroidal metastasis was diagnosed, it was accompanied with metastases to another organ in all patients from our search. Of the 14 patients, 11 patients died because of progression of the other organ metastases after diagnosis of the choroidal metastasis. The mean survival time was 5.6 months (range, 1–12) in all cases, excluding ours from the analysis.

Regarding treatment of choroidal metastases, systemic chemotherapy,^{14–16} radiotherapy,⁴ chemoradiotherapy^{9–11} and intravitreal bevacizumab therapy^{13,15} were all reported. There were two reports of enucleation before the current standard

Table 1

Clinical course in patients with choroidal metastasis as reported in the literature.

Author	Year	Sex Age	Primary colorectal carcinoma			Choroidal metastasis			Other organ metastasis	Outcome
			Primary lesion	Histology	T stage	Timing of diagnosis	Symptom	Therapy		
Cole	1985	F 48	Rectum	Well	T4a	1 year 11 months after PTR	Blurring of vision	RT, 5FU injection	Lung	4 months death
Tano	1989	M 30	Rectum	Mod	NS	Synch	Blurring of vision	Enucleation	Bone, skin	4 months death
Shinjyo	1989	M 78	Colon	Muc	NS	7 months after PTR	Vision loss	None	Skin	9 months death
Endo	1997	F 49	Rectum	NS	NS	7 years after PTR	Photopsia	Enucleation	Liver, lung	3 months death
Ward	2000	F 52	Colon	NS	NS	Synch	Vision loss	None	Intraabdominal	1 months death
Nakamura	2002	M 79	Colon	Muc	T4a	1 year 6 months after PTR	Cloudy vision	CRT	Lung	1 year alive
Fujiwara	2004	M 53	Rectum	Well	NS	2 years 6 months after PTR	Vision loss	CRT	Liver, lung, bone	1 months death
Linares	2004	M 47	Rectum	NS	NS	Synch	Blurring of vision	CRT	Liver, lung	9 months death
Hisham	2006	M 32	Rectum	Muc	T4a	10 months after PTR	Eye pain	None	Breast, spine	2 months death
Kuo	2008	F 65	Colon	NS	NS	1 year 8 months after PTR	Vision loss	Bev injection	Brain	5 months alive
Sashiyama	2010	M 49	Rectum	Mod	T3	1 year 3 months after PTR	Vision loss	CT	Lung, bone	11 months death
Lin	2010	M 43	Colon	NS	NS	8 years after PTR	Vision loss	CT, Bev injection	Bone	4 months death
Miyake	2012	M 74	Rectum	Well	NS	Synch	Vision loss	CT	Liver, lung	8 months death
Present case		M 60	Rectum	Well	T1	2 years 6 months after PTR	Myodesopsia	RT	Lung	2 years 3 months alive

Well, well-differentiated tubular adenocarcinoma; Mod, moderately-differentiated tubular adenocarcinoma; Muc, mucinous adenocarcinoma; PTR, primary tumor resection; Synch, synchronous; CT, chemotherapy; RT, radiotherapy; CRT, chemoradiotherapy; NS, not specified.

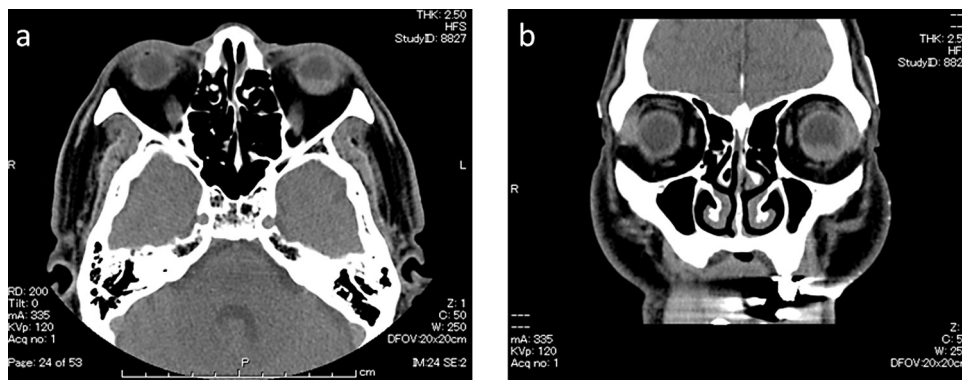


Fig. 2. Brain CT scan showed a convex lens-formed high absorbance structure in the left eye, considered to be metastatic rectal cancer.

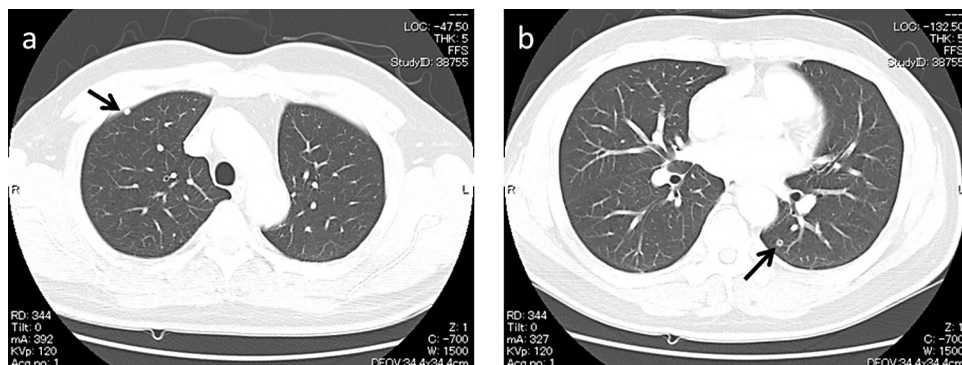


Fig. 3. Chest CT scan showed multiple small tumors (arrows), considered to be metastatic rectal cancer.

chemotherapy, namely FOLFOX and FOLFIRI was established.^{5,7} In 3 patients who received systemic chemotherapy, two patients had good response of the choroidal metastasis,^{14,16} but ultimately succumbed because of the other organ metastases. Using radiotherapy, Cole et al. reported that choroidal metastasis had enlarged one month after treatment.⁴ In the 3 patients who received chemoradiotherapy, Nakamura et al. reported a patient who survived for 1 year without recurrence of choroidal metastasis and other organ metastases after systemic chemotherapy and radiotherapy for the right eye.⁹ In two patients who received intravitreal bevacizumab therapy, Kuo et al. reported upon one had successful short-term regression of choroidal metastasis.¹³ Lin et al. reported that intravitreal bevacizumab successfully treated choroidal metastasis in one eye but failed to do so in the other eye.¹⁵

The current literatures have few recommendations regarding the appropriate treatment of choroidal metastasis from colorectal cancer, but an aggressive multi-disciplinary approach that includes chemotherapy, radiotherapy, chemoradiotherapy, and intravitreal bevacizumab therapy may be effective in local regression. With the current case, radiotherapy was chosen. The lung metastases already presented at the time of the choroidal metastasis, making it is important to also enforce systemic chemotherapy in addition to radiotherapy.

4. Conclusion

This is the first report of choroidal metastasis from early rectal cancer. In our case, radiotherapy was effective for choroidal metastasis. More experience and a long-term follow up are needed to establish the optimal treatment strategy for choroidal metastasis from colorectal cancer.

Conflict of interest

Mitsuyoshi Tei and the other co-authors have no conflict of interest to declare.

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Ethical approval

Written informed consent was obtained from the patients for the information to be included in our manuscript. His information has been de-identified to the best of our ability to protect his privacy.

Author contributions

Mitsuyoshi Tei wrote this paper, and selected chemotherapy regimens. Masaki Wakasugi selected chemotherapy regimens. Hiroki Akamatsu was operated on. All authors contributed to patient's treatment, and approve the final manuscript.

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